

## CLAIMS

### What is claimed is:

*Sub B1* 1. An isolated antibody that specifically binds to an epitope specifically bound by an antibody expressed by a clone selected from the group consisting of clone S25, clone C25, clone C39, clone 1C6, and clone 1F3, wherein said antibody binds to and neutralizes botulinum neurotoxin type A (BoNT/A).

2. The antibody of claim 1, wherein said clone is S25.

3. The antibody of claim 1, wherein said clone is C25 or C39.

4. The antibody of claim 1, wherein said clone is 1C6.

5. The antibody of claim 1, wherein said clone is 1F3.

*Sub C* 6. The antibody of claim 1, wherein said antibody comprises at least two variable heavy ( $V_H$ ) complementarity determining regions (CDRs) listed in Table 4.

7. The antibody of claim 6, wherein said antibody comprises at three variable heavy ( $V_H$ ) complementarity determining regions (CDRs) listed in Table 4.

8. The antibody of claim 1, wherein said antibody further comprises a variable light ( $V_L$ ) complementarity determining region (CDR) listed in Table 4.

9. The antibody of claim 8, wherein said antibody comprises at least two variable light ( $V_L$ ) complementarity determining regions (CDRs) listed in Table 4.

10. The antibody of claim 9, wherein said antibody comprises three variable light ( $V_L$ ) complementarity determining regions (CDRs) listed in Table 4.

11. The antibody of claim 1, wherein said antibody is an antibody expressed by a clone selected from the group consisting of a clone listed in Table 4.

12. The antibody of claim 1, wherein said antibody is a single chain Fv (scFv).

13. The antibody of claim 1, wherein said antibody is a Fab.

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- 1 14. The antibody of claim 1, wherein said antibody is a (Fab')<sub>2</sub>.
- 1 15. The antibody of claim 1, wherein said antibody is a (scFv')<sub>2</sub>.
- 1 16. The antibody of claim 15, wherein said antibody is a fusion protein of
- 2 two scFv fragments.

1 17. The antibody of claim 1, wherein said antibody comprises a framework

2 region listed in Table 4.

1 18. The antibody of claim 17, wherein said framework is a variable heavy

2 (V<sub>H</sub>) frame work region listed in Table 4.

1 19. The antibody of claim 17, wherein said framework is a variable light

2 (V<sub>L</sub>) frame work region listed in Table 4.

1 20. The antibody of claim 18, wherein said antibody comprises at least two

2 variable heavy (V<sub>H</sub>) framework regions listed in Table 4.

1 21. The antibody of claim 19, wherein said antibody comprises at least two

2 variable light (V<sub>L</sub>) framework regions listed in Table 4.

1 22. The antibody of claim 18, wherein said antibody comprises a variable

2 heavy (V<sub>H</sub>) region listed in Table 4.

1 23. The antibody of claim 19, wherein said antibody comprises a variable

2 light (V<sub>L</sub>) region listed in Table 4.

1 24. An isolated anti-botulinum neurotoxin type A (anti-BoNT/A) antibody,

2 said antibody comprising a variable heavy (V<sub>H</sub>) complementarity determining region (CDR)

3 listed in Table 4 and wherein said antibody specifically binds to and neutralizes a botulinum

4 neurotoxin type A.

1 25. The antibody of claim 24, wherein said antibody comprises at least two

2 variable heavy (V<sub>H</sub>) complementarity determining regions (CDRs) listed in Table 4.

1 26. The antibody of claim 25, wherein said antibody comprises at three

2 variable heavy (V<sub>H</sub>) complementarity determining regions (CDRs) listed in Table 4.

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1 27. The antibody of claim 24, wherein said antibody further comprises a  
2 variable light (V<sub>L</sub>) complementarity determining region (CDR) listed in Table 4.

1 28. The antibody of claim 27, wherein said antibody comprises at least two  
2 variable light (V<sub>L</sub>) complementarity determining regions (CDRs) listed in Table 4.

1 29. The antibody of claim 28, wherein said antibody comprises three  
2 variable light (V<sub>L</sub>) complementarity determining regions (CDRs) listed in Table 4.

1 30. The antibody of claim 24, wherein said antibody is an antibody  
2 expressed by a clone selected from the group consisting of a clone listed in Table 4.

1 31. The antibody of claim 24, wherein said antibody is a single chain Fv  
2 (scFv).

1 32. The antibody of claim 24, wherein said antibody is a Fab.

1 33. The antibody of claim 24, wherein said antibody is a (Fab')<sub>2</sub>.

1 34. The antibody of claim 24, wherein said antibody is a (scFv')<sub>2</sub>.

1 35. The antibody of claim 34, wherein said antibody is a fusion protein of  
2 two scFv fragments.

1 36. The antibody of claim 24, wherein said antibody comprises a  
2 framework region listed in Table 4.

1 37. The antibody of claim 36, wherein said framework is a variable heavy  
2 (V<sub>H</sub>) frame work region listed in Table 4.

1 38. The antibody of claim 36, wherein said framework is a variable light  
2 (V<sub>L</sub>) frame work region listed in Table 4.

1 39. The antibody of claim 37, wherein said antibody comprises at least two  
2 variable heavy (V<sub>H</sub>) framework regions listed in Table 4.

1 40. The antibody of claim 38, wherein said antibody comprises at least two  
2 variable light (V<sub>L</sub>) framework regions listed in Table 4.

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1 50. The method of claim 49, wherein said antibody comprises three  
2 variable light (V<sub>L</sub>) complementarity determining regions (CDRs) listed in Table 4.

1 51. The method of claim 44, wherein said antibody is an antibody  
2 expressed by a clone listed in Table 4.

1 52. The method of claim 44, wherein said antibody is a single chain Fv  
2 (scFv).

1 53. The method of claim 44, wherein said antibody is a Fab.

1 54. The method of claim 44, wherein said antibody is a (Fab')<sub>2</sub>.

1 55. The method of claim 44, wherein said antibody is a (scFv')<sub>2</sub>.

1 56. The method of claim 55, wherein said antibody is a fusion protein of  
2 two scFv fragments.

1 57. The method of claim 44, wherein said antibody comprises a framework  
2 region listed in Table 4.

1 58. The method of claim 57, wherein said framework is a variable heavy  
2 (V<sub>H</sub>) frame work region listed in Table 4.

1 59. The method of claim 57, wherein said framework is a variable light  
2 (V<sub>L</sub>) frame work region listed in Table 4.

1 60. The method of claim 58, wherein said antibody comprises at least two  
2 variable heavy (V<sub>H</sub>) framework regions listed in Table 4.

1 61. The method of claim 59, wherein said antibody comprises at least two  
2 variable light (V<sub>L</sub>) framework regions listed in Table 4.

1 62. The method of claim 58, wherein said antibody comprises a variable  
2 heavy (V<sub>H</sub>) region listed in Table 4.

1 63. The method of claim 59, wherein said antibody comprises a variable  
2 light (V<sub>L</sub>) region listed in Table 4.

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1           64. A polypeptide comprising botulinum neurotoxin type A (BoNT/A)  
2 neutralizing epitope, said neutralizing epitope comprising an epitope specifically bound by an  
3 antibody expressed by a clone selected from the group consisting of clone S25, clone C25,  
4 clone C39, clone 1C6, and clone 1F3, wherein said polypeptide is not a full-length botulinum  
5 neurotoxin H<sub>c</sub> fragment.

1           65. The polypeptide of claim 64, wherein said polypeptide is a fragment of  
2 BoNT/A H<sub>c</sub> having a length of at least 8 amino acids.

1           66. The polypeptide of claim 64, wherein said clone is S25.

1           67. The polypeptide of claim 64, wherein said clone is C25 or C39.

1           68. The polypeptide of claim 64, wherein said clone is 1C6.

1           69. The polypeptide of claim 64, wherein said clone is 1F3.

1           70. A method of making a botulinum neurotoxin type A antibody (anti-  
2 BoNT/A) that neutralizes BoNT/A, said method comprising:  
3                   contacting a plurality of antibodies with a an epitope specifically  
4 bound by an antibody expressed by a clone selected from the group consisting of clone S25,  
5 clone C25, clone C39, clone 1C6, and clone 1F3; and  
6                   isolating an antibody that specifically binds to said epitope.

1           71. The method of claim 70, wherein said clone is S25.

1           72. The method of claim 70, wherein said clone is C25 or C39.

1           73. The method of claim 70, wherein said clone is 1C6.

1           74. The method of claim 70, wherein said clone is 1F3.

1           75. The method of claim 70, wherein said plurality of antibodies are  
2 antibodies displayed on a surface protein of a phage.

1           76. The method of claim 70, wherein said plurality of antibodies are  
2 antibodies in serum from a mammal.

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1 77. The method of claim 70, wherein said plurality of antibodies are  
2 antibodies expressed by hybridomas.

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